Best picture quality in playback - JPEG2000

Stand Alone DVR Lite

User's Manual VER1.02

4Channel Stand-alone DVMR

Digital Video Recorder

The most stable and reliable real stand-alone Digital Video Multiplex Recorder

INSTALLATION & SAFEGUARDS

All the safety and operating instructions should be read before the unit is operated.

Environment Condition for Installation

- To prevent electric shock or other hazard, do not expose units to rain, moisture, or dust.
- This unit should be located in an area with low humidity and a minimum of dust..
- Place this unit in a well-ventilated place and do not place heat-generating objects on this unit.
- This unit should not be located in an area where it is likely to be subjected to mechanical shocks.

Before You Start

- Ensure the power switch is in the OFF position prior to starting.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards.
- Installation should be performed by qualified service personnel only.
- This unit should be operated only from the type of power source indicated on the manufacturer's label and with the power supply included with the unit.

Notice

- Be aware thoroughly about the power connection before installation of the unit.
- Before initial configuration or operation you must first set the TIME/DATE, followed by setting the unit to the FACTORY DEFAULT settings, lastly clearing the HDD. Please follow these steps in order.
- Before installing a second HDD, ensure that the drive conforms to the specifications listed on the specifications page at the end of this manual. When installing a second HDD, set the drive to SLAVE. After installation, first reset the TIME/DATE, followed by resetting the unit to the FACTORY DEFAULT settings, lastly clearing the new HDD.
- Pull the unit out of record mode prior to cutting power to the unit. Do this by entering the setup menu, followed by switching the unit off. Powering off the unit while writing to the disks can cause critical malfunctions. (ex: Recording Error, Playback Error, System Error)
- When you set the record type, you have to set the Record Configuration and also Schedule Setup. This unit records as per the Record type & Schedule setup.
- The [REC] button on the front panel is for emergency record using highest image quality.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of this equipment that there are dangerous voltages within the enclosure which may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance(Servicing) instructions in the literature accompanying the appliance.

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CHAP. 1 Features & Package Contents

1-1. Features

Live View

Real Time Display
Digital Zoom
Display Freeze
Simple Playback mode
Simple PTZ camera control

Record

Variable Record resolution (For higher picture quality or higher recording speed)
Efficient Image Quality setup in 5 steps
Schedule Record / Holiday Record
Event Record (Alarm / Motion)
Emergency Record

Playback

Search & Playback by Date/Time, Event and Camera
Outstanding picture quality by JPEG 2000 compression algorithm (No mosaic effect)
Suitable for recording not only images but also text
Various steps in Forward Playback Speed (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)
Various steps in Backward Playback Speed (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)

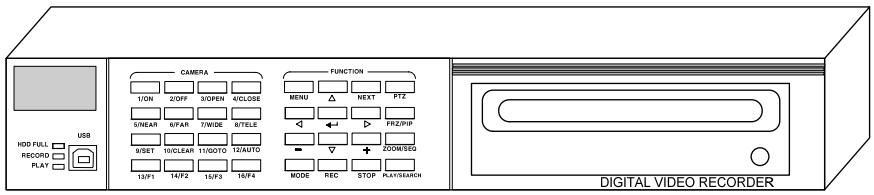
Data Back-Up

Simple Back-Up using built-in CD Writer (Back-up CD Player included in the package)
Supports bigger capacity of HDD (400GB or bigger)

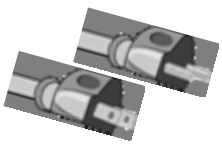
Others

Multi-Language (English, Spanish, German, French, Italy, Japan, China etc)
Support UNI-CODE Menu Table
PAL/NTSC Auto detection

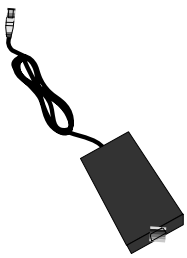
1-2. Package Contents



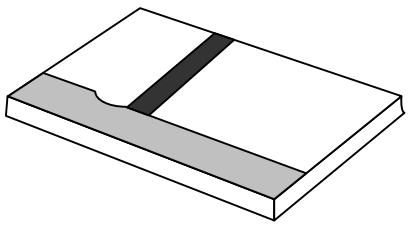
1. DVR Main Unit



2. Power Cable

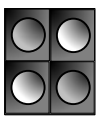


3. Power Adapter

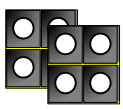


4. User's Manual

5. Software CD



6. Rubber Pad

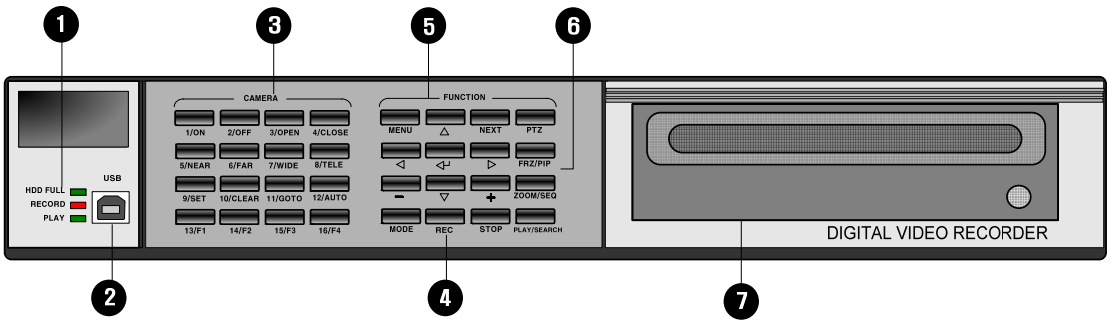


7. HDD absorber

Package Contents	Description
1. DVR Main Unit	STAND-ALONE DIGITAL VIDEO RECORDER
2. Power Cable	AC power supply to adapters for 12 V DC power
3. Power Adapter	12 V DC power supply
4. User's Manual	User's Manual
5. Software CD	BACK-UP CD PLAYER
6. Rubber Pad	Prevent DVR from slipping. Attach it to the bottom of main unit
7. HDD absorber	Absorbing the mechanical shock of HDD against the case bottom

CHAP 2. Function of Each Button

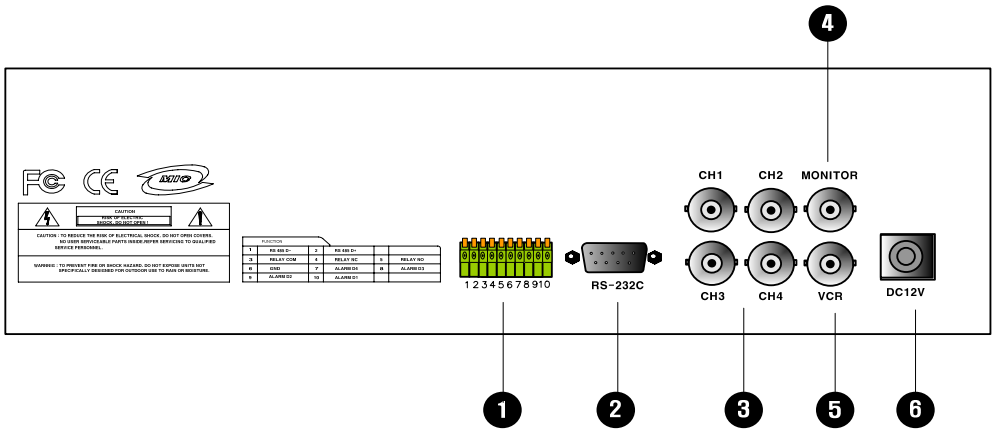
2-1 FRONT



Name	Function	
① LED Lamps	Shows status of operation	
② USB Device	Firmware upgrade by connecting PC with latest firmware to USB port	
③ Camera selection & PTZ camera control	1. Pressing this button will display a full screen image of that camera	
	2. Control PTZ camera (Each button is assigned for each PTZ command)	
	• ON : LIGHT ON	• SET : SET PRESET
	• OFF : LIGHT OFF	• CLEAR : CLEAR PRESET
	• OPEN : IRIS OPEN	• GOTO : GOTO PRESET
	• CLOSE: IRIS CLOSE	• AUTO : AUTO SCAN
	• NEAR : FOCUS NEAR	• F1 : USER 1
	• FAR : FOCUS FAR	• F2 : USER 2
	• WIDE : ZOOM IN	• F3 : USER 3
	• TELE : ZOOM OUT	• F4 : USER 4
④ Record / Playback	MODE	Switch to split display (screen-division)
	REC	Emergency Record : The best quality recording CONTINUOUS, 60ips, SUPER FINE, 1/1x
	STOP	Stop of Emergency Record and return to Schedule Record from Emergency Record. Playback stop.
	PLAY	Playback of recorded data on HDD
	SEARCH	Search recorded data on HDD
⑤ SETUP	MENU	Set up for SYSTEM MENU or Use to exit the menu Press MENU button before powering off the unit.
	ENTER	Selects each menu option
	NEXT	Move to next step
	▲▼◀▶	Navigate in the menu
	+ –	Increase or reduce the option value in the menu

Name	Function	
⑥ LIVE View Control	PTZ	On/Off for PAN/TILT/ZOOM control mode Press this button first to control PTZ camera connected to DVR unit via RS-485
	FRZ	Freezing an image
	ZOOM	Zooming an image
	SEQ	Auto camera image sequencing in full screen mode
⑦ CD-RW	Data Back-up and Firmware Upgrade using built-in CD writer	

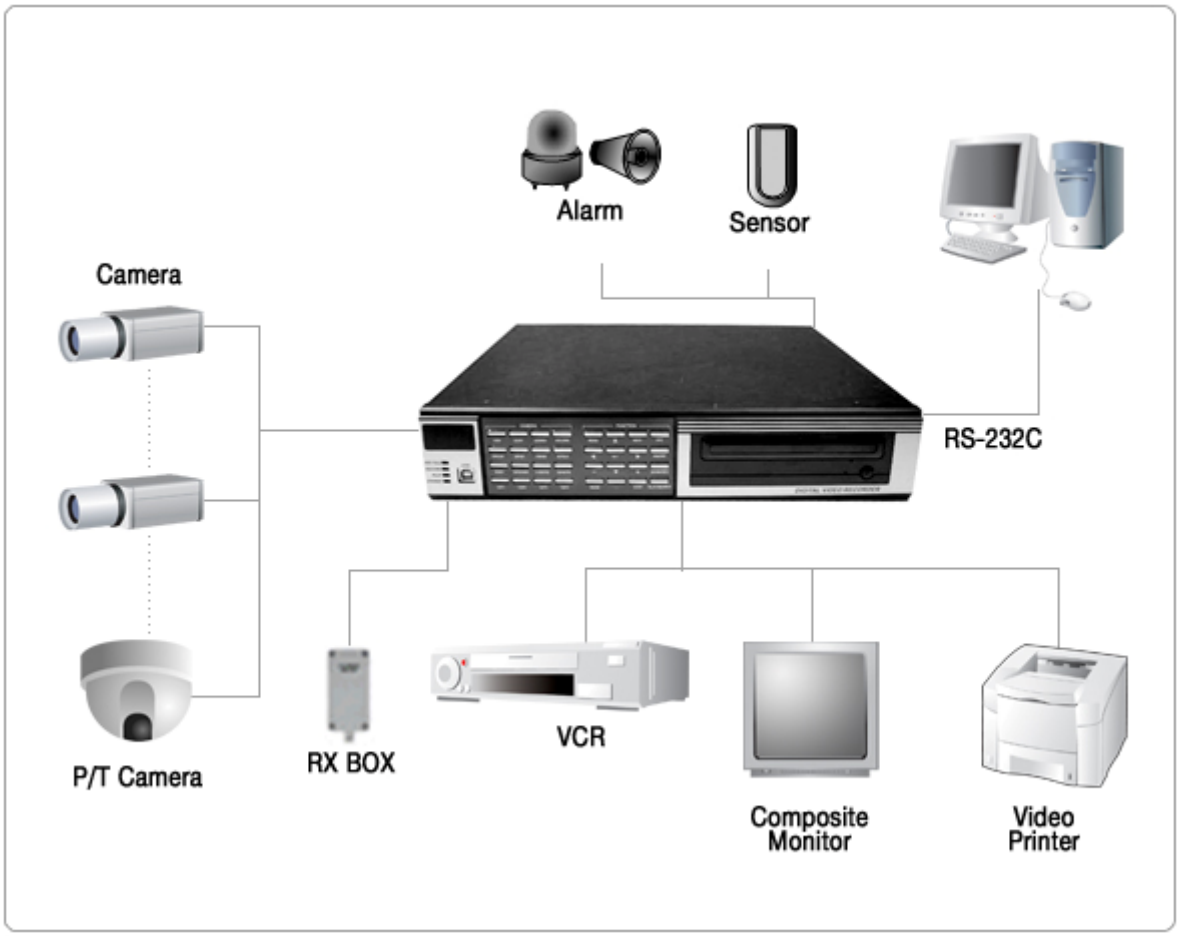
2-2. REAR



	Name	Function
1	RS 485	Connection with PTZ Camera or other external device using RS 485 interface
	RELAY Output	Relay out terminal
	SENSOR Input	Sensor input terminal
2	RS-232C	Connection to external device as PC using RS-232C to control the DVR
3	CAMERA Input	Connection with camera
4	MONITOR Output	Connection with Composite Monitor (NTSC / PAL)
5	VCR Output	Connection with VCR for analog backup
6	DC Power	DC 12V 5.83A Adaptor

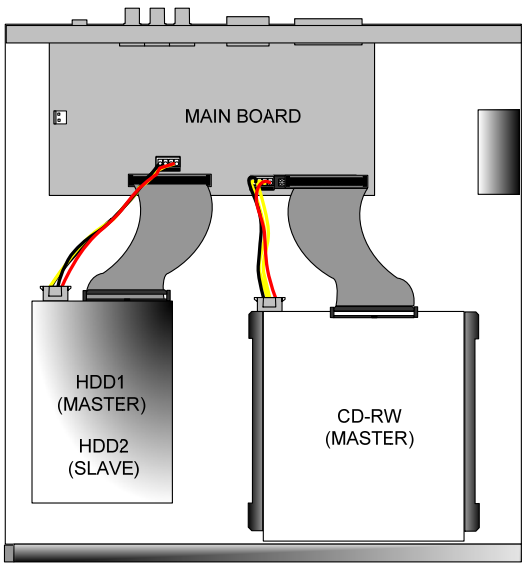
CHAP.3 Installation

3-1. Installation Configuration



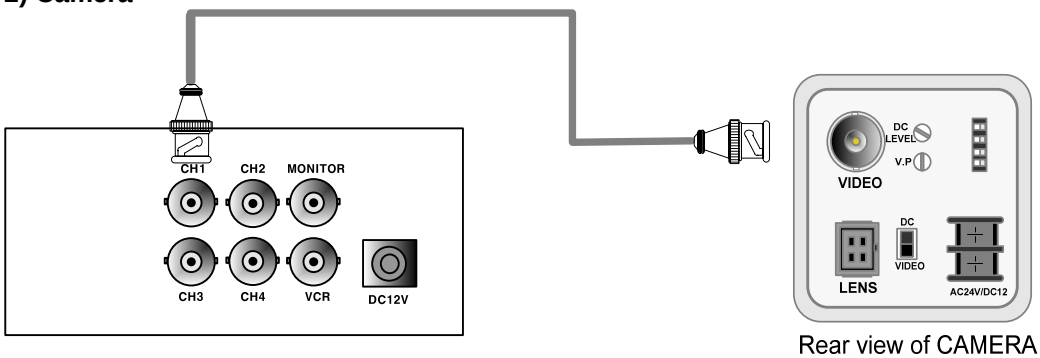
3-2. Detailed Installation

1) HDD Connection



1. Connect Main Board and HDD1 using IDE cable and HDD power cable.
2. The jumper setting of HDD1 should be on Master if you install only one HDD.
3. The jumper setting of HDD1 should be on Master and HDD2 should be on Slave if you install two HDDs. (Refer to the above figure)
4. Stick the HDD absorber (included in package) on the bottom of case and then install the HDD on top of them by using the bolts (included in package).
5. Screws must be inserted from outside of the case bottom.

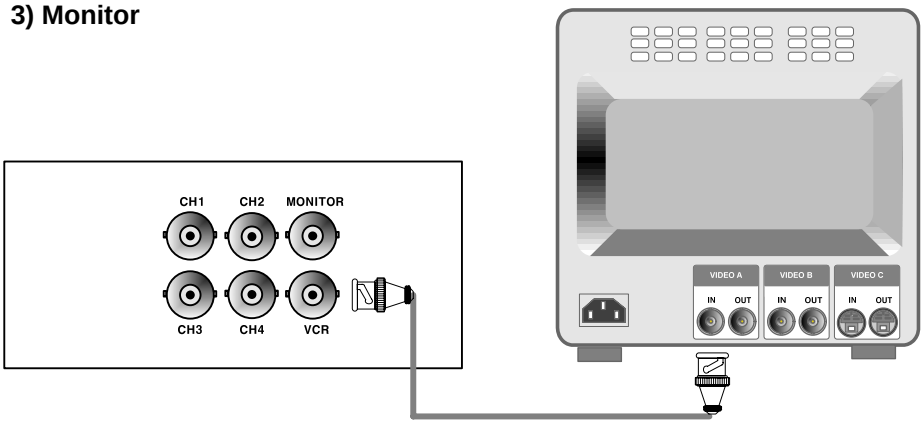
2) Camera



Rear view of CAMERA

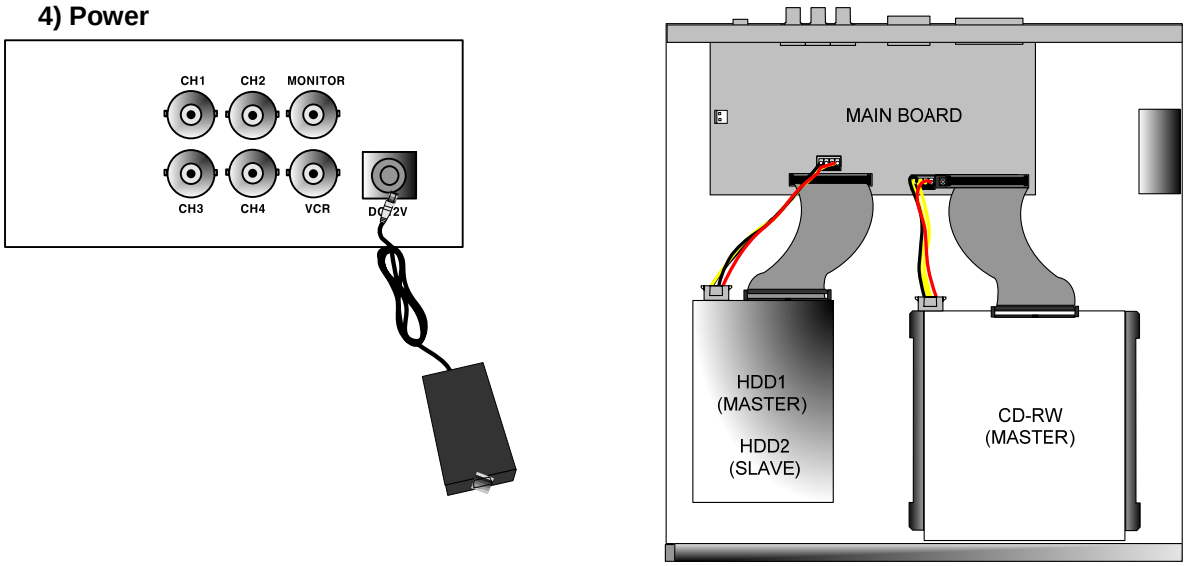
Connect cameras to the camera input on rear panel of DVR marked CAMERA IN.

3) Monitor



Connect the video output marked MONITOR to Video-In of Main monitor.

4) Power

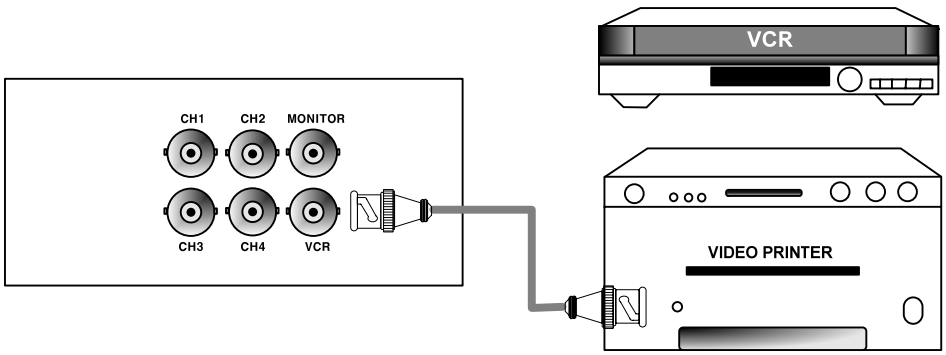


Connect DC 12V 5.83A Adaptor to the back side of Power Jack.

Notice

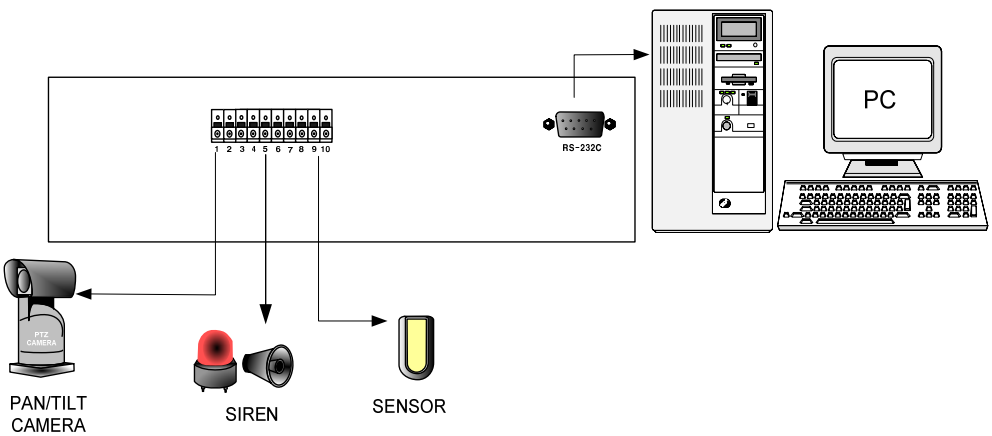
To avoid accidental deletion of HDD data, please make sure to press MENU button before power off the unit. This takes the unit out of record mode for safe shutdown.

5) VCR, VIDEO PRINTER



Connect VCR or VIDEO Printer to VCR out on the rear panel of DVR.

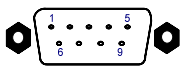
6) Other External Device



RS-232C : Control DVR through RS-232C port by using PC.
RS-485 : Control external device like PTZ Camera
(Pin No. 1 and 2 at Terminal Block)
RELAY Output : Relay Output (Pin No. 3 ~ 5 at Terminal Block)
SENSOR Input : SENSOR Input (Alarm connection)
(Pin No. 6 ~ 10 at Terminal Block)

7) Connector Pin Assignment

No		Description	NO		Description
1	N/C	N/C	6	N/C	N/C
2	RxD	Receive data	7	N/C	N/C
3	TxD	Transmit data	8	N/C	N/C
4	N/C	N/C	9	N/C	N/C
5	GND	Signal Ground			



RS-232C

8) RS-232C ASCII-code

Following ASCII-Codes(Hexa-Code) are for programmers who want to control DVR unit via the RS232C Port using keyboard of PC.
Most of ASCII-Code is 1 Byte and key release is 3 Byte.

REC	'R'	DOWN	'J'	PTZ	'T'	CH2	'2'	CH9	'9'	CH16	'^'
STOP	'S'	LEFT	'H'	ZOOM	'Z'	CH3	'3'	CH10	'0'		
PLAY	'P'	RIGHT	'K'	FRZ	'F'	CH4	'4'	CH11	'!'		
Pause	'A'	NEXT	'N'	MODE	'D'	CH5	'5'	CH12	'@'		
SERCH	'E'	ENTER	0D h	SEQ	'Q'	CH6	'6'	CH13	'#'		
MENU	'M'	-	'<'	QPLAY	'Y'	CH7	'7'	CH14	'$'		
UP	'U'	+	'>'	CH1	'1'	CH8	'8'	CH15	'%'		

•Key Release (Available for only PTZ function)
If User transmit Hexa value 26h, 5A h, 0D h ("&Z[Enter]") to DVR continuously, DVR recognize it is Key Release.

For example, if DVR conduct "PAN-UP" for 2 seconds at PTZ operation, push "U" button for 2 seconds and then transmit 26 h, 5A h, 0D h.

4-1. System Log-In

1) To enter into the setup menu, press the [MENU] button.

2) Enter password with channel number button
from No.1 to No.10 on the front of the DVR unit.
(Maximum of 8 digits are available)

3) After inputting the password, press the [ENTER] button.

Administrator :
If the password entered matches previously set password, " LOGIN ADMIN" message appears and you can enter into SYSTEM SETUP.
If the password entered does not match previously set password, the DVR unit goes back to live display mode.

Factory default password is blank. For log-in, just press [MENU] button and then [ENTER] button.

-Factory default password
ADMIN : (Blank)
MANAGER : ' 1 '
USER 1~USER8 : ' 2 ' ~ ' 9 '

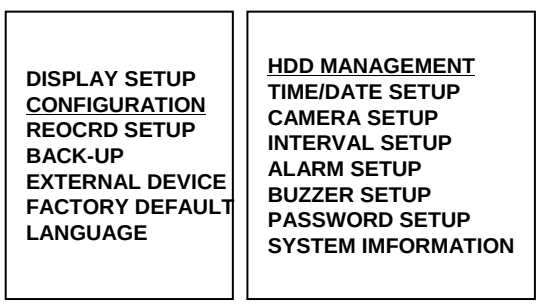
※ We recommend configuring a unique password as per the procedure in SYSTEM MENU - CONFIGURATION - PASSWORD SETUP.

※ For security reasons, be sure to make note of your own password.

4-2. Factory Default

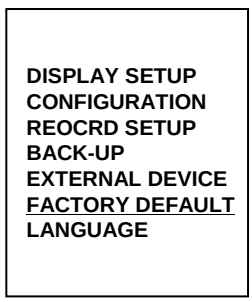
Before first operation, you must set Time/Date, set FACTORY DEFAULT, and then clear HDD, even though it is brand new one. It is to make DVMR system and HDD ready for proper operation. Starting recording without FACTORY DEFAULT setting and HDD clear will cause malfunction.

1. HDD CLEAR



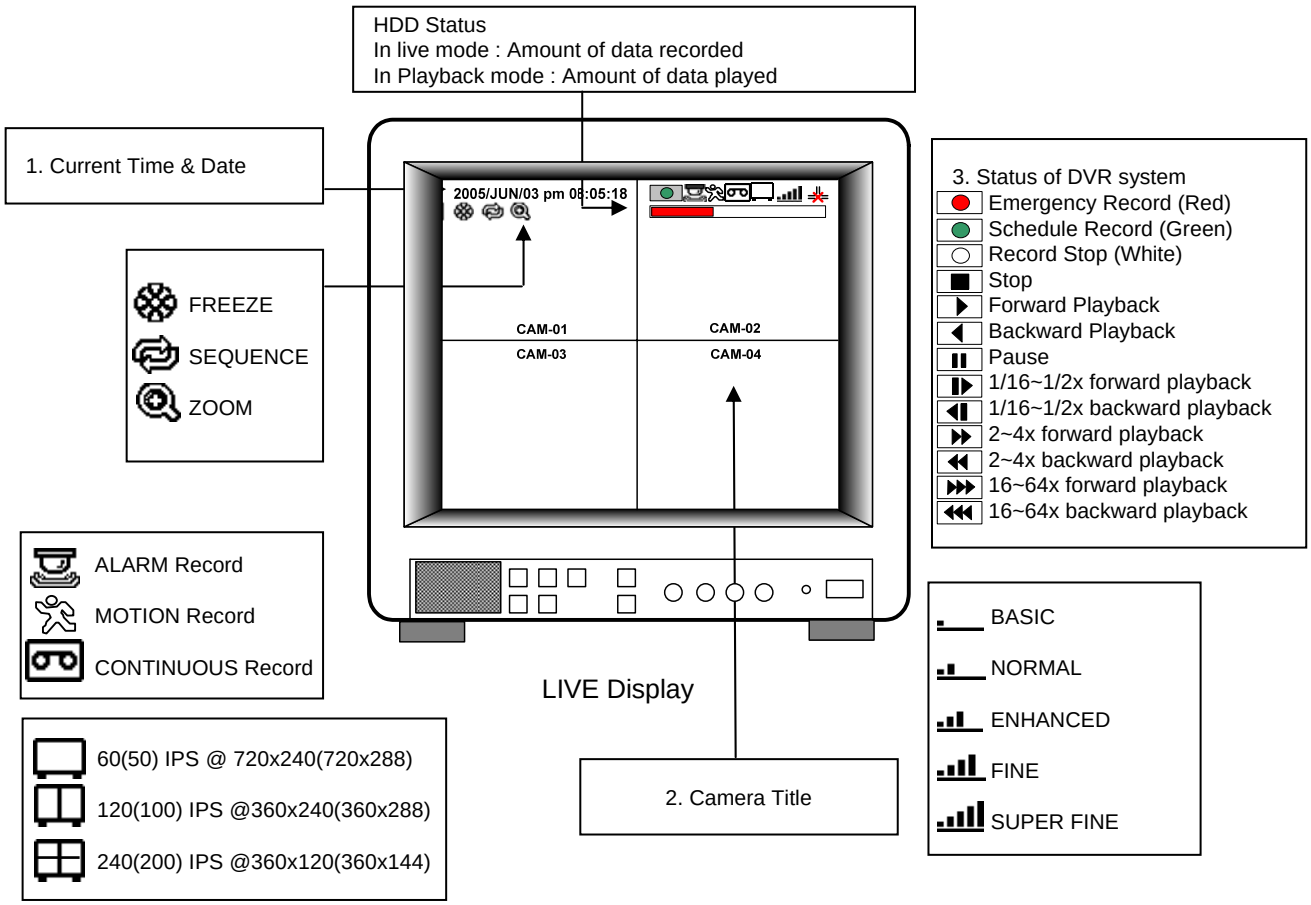
Refer to page 22.

2. FACTORY DEFAULT



Refer to page 31.

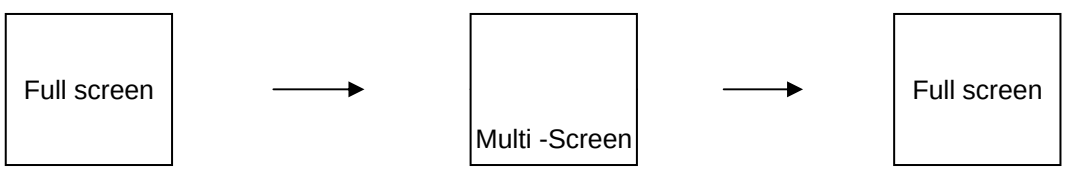
4-3. Display Configuration



4-4. Live View Setup

1) Full / Multiple View

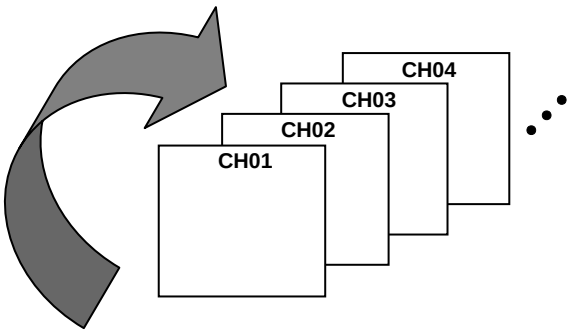
Switch to multi-screen display by pressing [MODE]. For full image display, just press the channel button which you want or [MODE] button again.
When you playback images which recorded in 360X240(360X288) resolution, only 4 split screen is available.



[MODE] [MODE] or Channel button

2) View in Sequence

Press [SEQ] button. It automatically displays full screen images in sequence.



3) Freeze View

Full display mode : If you press the [FRZ] button, the FRZ icon will be activated on the screen and “F” character will be shown beside camera title, and live image will be frozen.

Split display mode : If you press the [FRZ] button, the FRZ icon will be activated on the screen. press the channel button which you want to freeze. To release frozen image, press channel number of frozen image again and press [FRZ] button to exit FRZ mode.

4) Zoom View

In full screen, press the [ZOOM] button and move the Selection Frame using Direction keys to the area which you want to enlarge. And then press the [ENTER] button for 2-times enlarged picture.

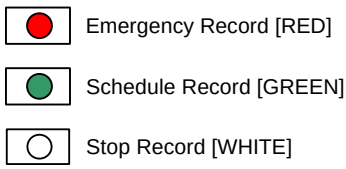
To exit Zoom mode, just press [ZOOM] button again.

Horizontal Movement : [LEFT], [RIGHT] button
Vertical Movement : [UP], [DOWN] button

4-5. Record

Recording mode set before delivery by manufacturer (Default recording mode) is Schedule Recording.
In this default recording mode, it records 24 hours/day continuously in weekday and on the weekend.
Once you press the [REC] button while you see live view, the record type is changed to Emergency Record mode.

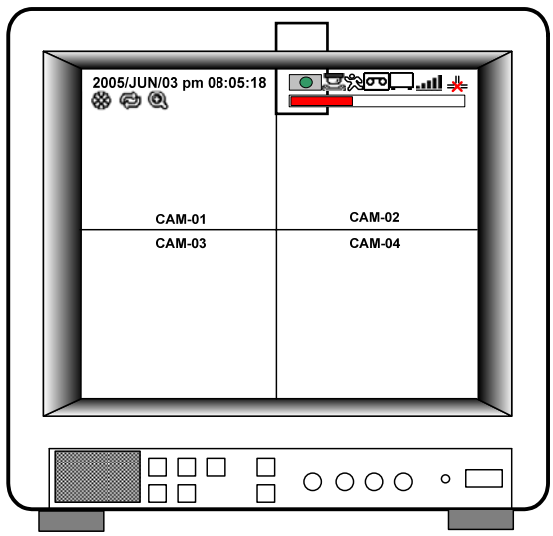
- Emergency Record : at full resolution/in best quality
  Record type : CONTINUOUS, SUPER FINE quality,
  60 (50) ips at 720X240 (720x288)
- Schedule Record
  Record and stop as set (time interval and
  record type) in RECORD-SCHEDULE SETUP menu.
- Stop Record
  Recording stopped as set in
  RECORD-SCHEDULE SETUP menu.



On the screen
- Emergency Record
  : Red Record Icon ( ) and Record LED is lit
- Schedule Record
  : Green Record Icon ( ) and Record LED is lit
- Record Stop
  : White Icon ( ) and Record LED is off
- Motion Record, Alarm Record, Alarm + Motion Record
  : Record standby LED blinks
  : Record LED is lit

※ If user press [REC] button at schedule record mode, DVR will be on Emergency record mode. While in Emergency Record mode, press [STOP], [PLAY], [MENU], or [SEARCH] button to exit from Emergency Recording mode and return to Schedule Record mode.

※ For details, refer to the SYSTEM MENU – RECORD SETUP (Page 27)



- This DVR unit does not record in following conditions ;

※ While entered in the Menu or during playback mode.
※ No camera is connected
※ Overwriting is off in the Record Setup menu and HDD is full.
※ Incorrectly system set-up after installing HDD
※ Record time-off when user set schedule record mode,

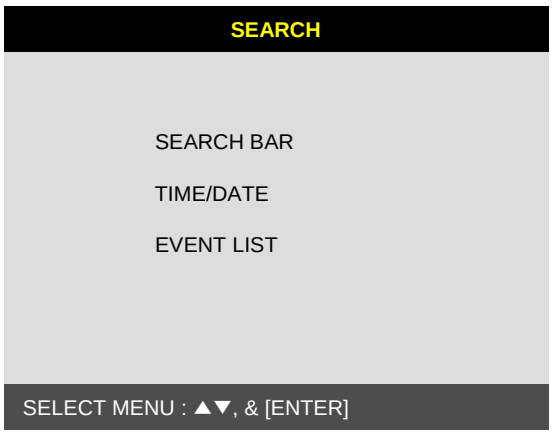
4-6. Playback

On record mode or stop mode, press [PLAY] button to play the recorded data in 1x speed.
For backward playback, press [PLAY] button again.
If you want to playback fast or low speed, please use up/down button.
To stop playback, press the [STOP] button.

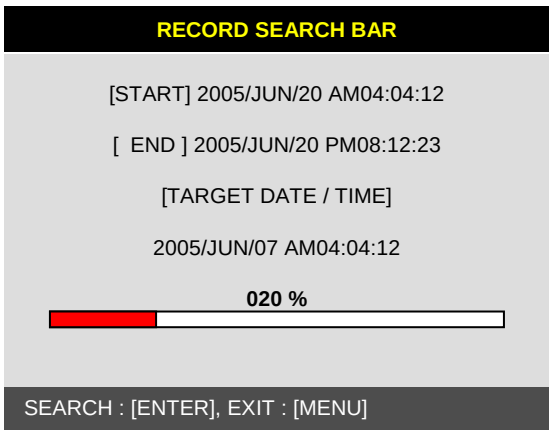
4-7. Search

Press [SEARCH] button, and 3 different methods for searching recorded data are available as shown in following SEARCH window. For selecting searching method, use direction key.
After selecting each search method, press [ENTER] button for playback. exit, press [MENU] button.

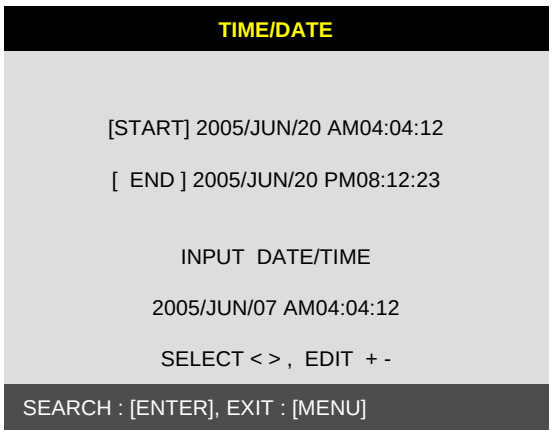
1) SEARCH BAR
Search by percentage of total recorded data. It starts from image corresponding to set % of data on the search bar.
2) TIME/DATE
Search by time & date. Playback starts from the time & date selected.
3) EVENT LIST
Search by event list (Motion, Alarm, Video Loss).



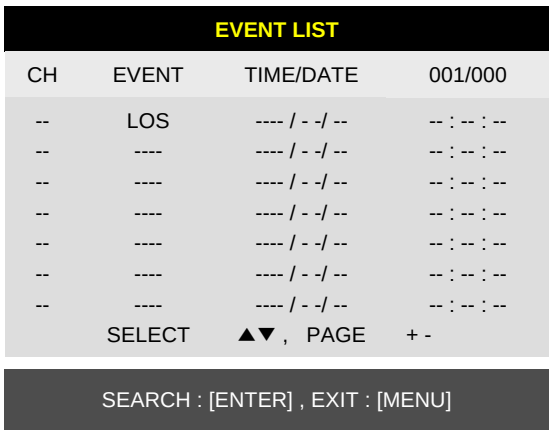
SEARCH page



SEARCH BAR page



TIME/DATE page



EVENT LIST page

4-8. PAN/TILT/ZOOM Camera Operation

Press [PTZ] button first for PTZ control mode. Numeric buttons from 1 to 16 and direction buttons are assigned for each PTZ command, and user can control PTZ camera connected to DVR unit by pressing any one of those 20 buttons, one after the other, as needed, and it is just like control by separate PTZ controller.

Button	PTZ command	Button	PTZ command
1/ON	LIGHT ON	10/CLEAR	PRESET CLEAR
2/OFF	LIGHT OFF	11/GOTO	PRESET GOTO
3/OPEN	IRIS OPEN	12/AUTO	AUTO SCAN
4/CLOSE	IRIS CLOSE	13/F1 ~ 16/F4	FUNCTION
5/NEAR	FOCUS NEAR	UP BUTTON	TILT UP
6/FAR	FOCUS FAR	DOWN BUTTON	TILT DOWN
7/WIDE	ZOOM IN	LEFT BUTTON	PAN LEFT
8/TELE	ZOOM OUT	RIGHT BUTTON	PAN RIGHT
9/SET	PRESET SET		

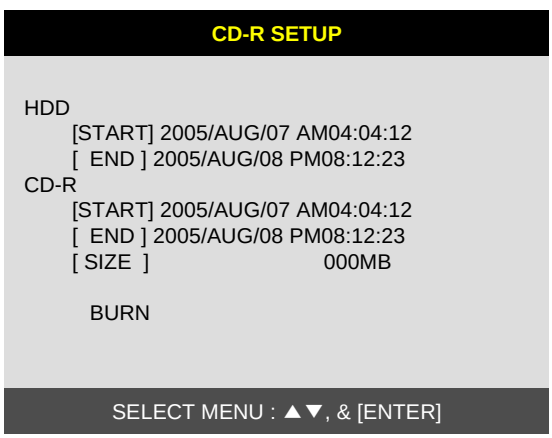
* Preset Function

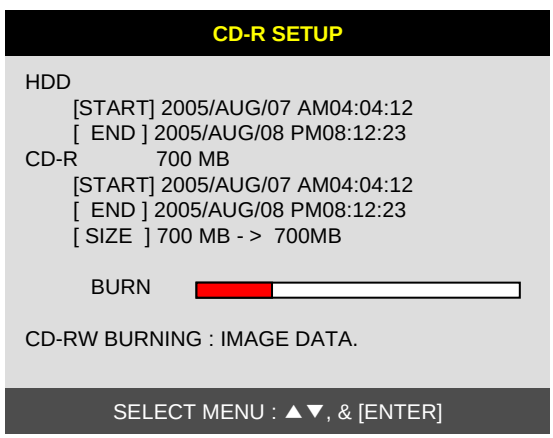
1) Press 10/CLEAR button to clear previous camera position data.
2) Press 9/SET button to preset. Now PRESET function was set up.
3) Press 11/GOTO button to use preset function.

4-9. Data Back-Up

Enter into SYSTEM MENU-BACKUP-CDR SETUP.

1) Insert empty CD-R media into CD writer and select the start time & date from which you want to back up.
   ※ The START and END information of HDD (Sub-Directory) only shows data recorded. This is not selectable and editable.
2) Press [ENTER] button at START of CD-R (Sub-Directory) and set start time you need using [+],[-] button. Press [ENTER] button to exit again.
   Move on SIZE and press [ENTER] to set size of back-up data using [+],[-] button.
   ※ END time of CD-R will be calculated automatically as [SIZE] you select.
3) Press [ENTER] button on BURN.
4) When burning is completed, CD-R media will come out automatically. In the next CD back-up, start time of CD-R shall be the end time of previous CD-back-up, and you can back-up from that for continuous data back-up.
   ※ During burning CD, it's impossible to cancel burning process.
5) User can verify the back-up CD on PC with BACK-UP CD PLAYER (Included in Package).



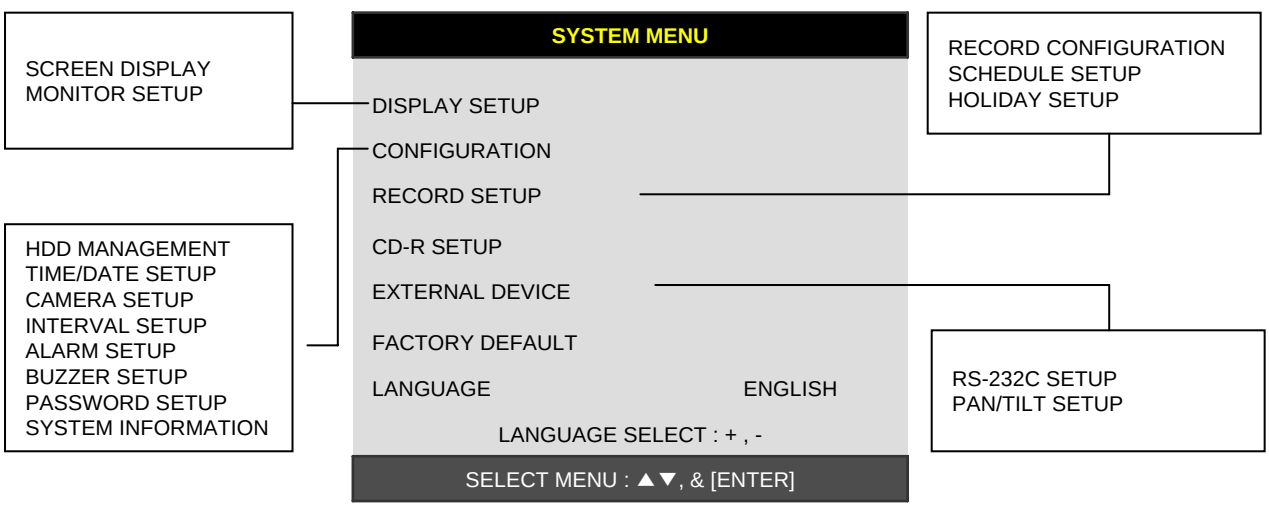


CHAP. 5 Set Up

5-1. Entering into the Menu

Enter into SYSTEM MENU by pressing [MENU] button.

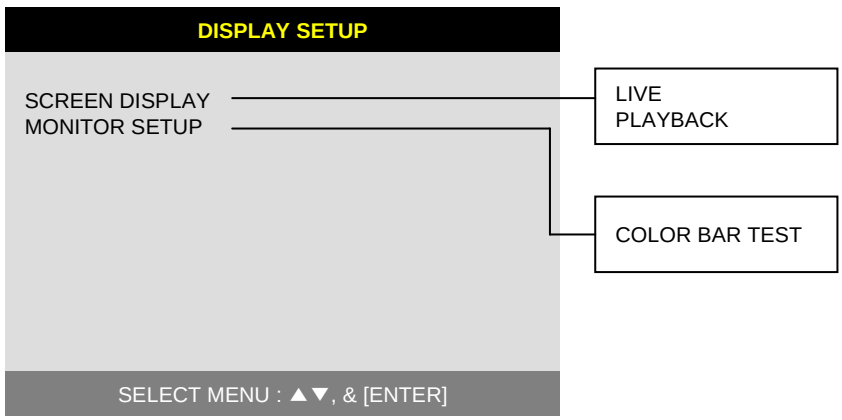
Button	Function
MENU	Enter into SYSTEM MENU, Move to previous menu, ESC
ENTER	Selection key, Move to sub-menu, change status (ON or OFF)
NEXT	Move to next page
UP	Move to upper side
DOWN	Move down side
LEFT	Move to the left
RIGHT	Move to the right
MINUS [-]	Decrease the option value
PLUS [+]	Increase the option value



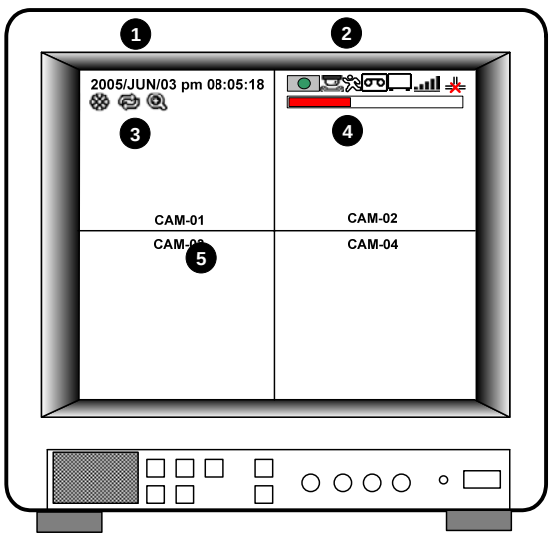
SYSTEM MENU

5-2. DISPLAY SETUP

Setting up parameters for monitor and display on screen.
Enter into SYSTEM MENU-DIPLAY SETUP.



1) SCREEN DISPLAY



Setting up the screen display in LIVE mode and PLAYBACK mode.

Select the sub-menu which you would like to set using direction buttons and then change ON/OFF with [ENTER] button.

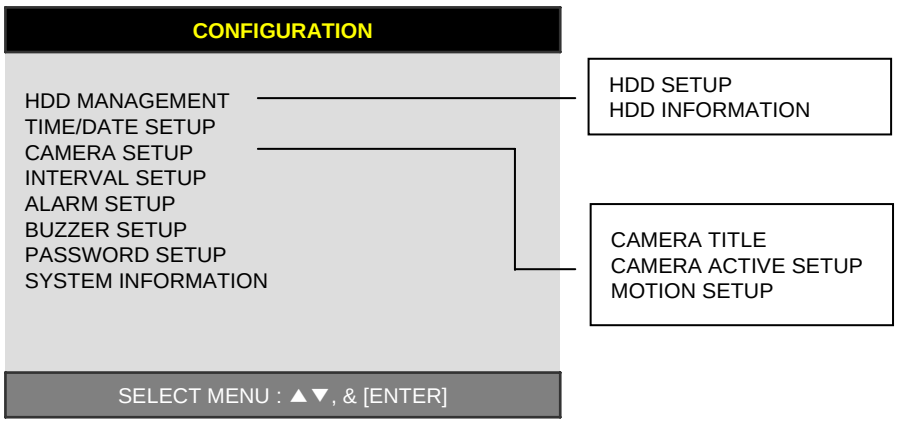
1. TIME/DATE : Display time & date
2. ICON DISPLAY : Display function setting status
3. DVR STATUS : Display system setting status
4. REC/PLAY BAR : Display record / playback status
5. CAMERA TITLE : Display camera title

2) MONITOR SETUP

COLOR BAR TEST : Adjust color tone of monitor.

5-3. CONFIGURATION

Various parameters for system can be set in CONFIGURATION menu.
Enter into SYSTEM MENU-CONFIGURATION and press the [ENTER] button.

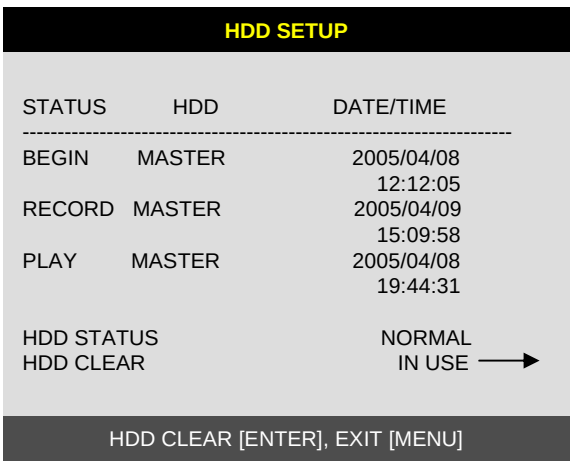


1) HDD MANAGEMENT

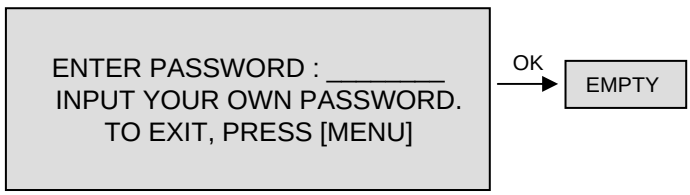
Enter into SYSTEM MENU-CONFIGURATION-HDD MANAGEMENT and press the [ENTER] button.

(1) HDD SETUP

This page includes information about start and end of recording, location of recorded data, or location of last playback on HDD. In addition, users can delete all the data on HDD.



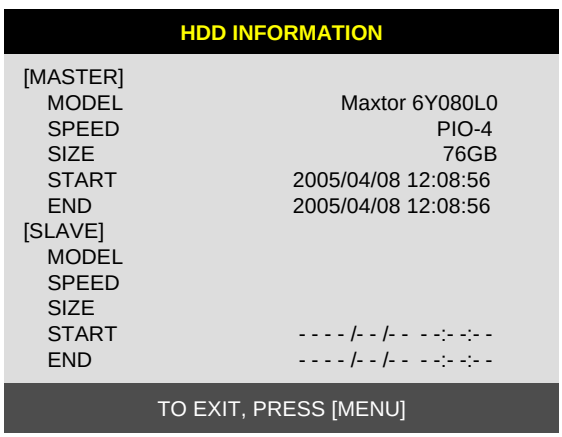
On the [HDD CLEAR] sub-menu, press the [ENTER] button to delete all image data on HDD.
The system will ask password for verification.
After you clear all data on HDD, status of HDD CLEAR changes from IN USE to EMPTY.
※ When you clear HDD, event list is deleted, too.



If you selected OVERWRITE in Record Setup, the HDD STATUS presented as OVERWRITE.

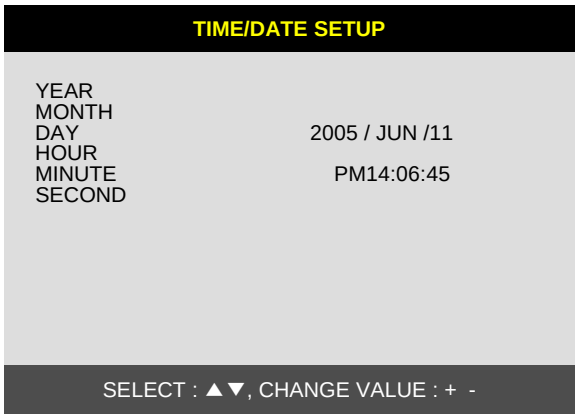
(2) HDD INFORMATION

This menu will show the physical information of HDD in DVR.

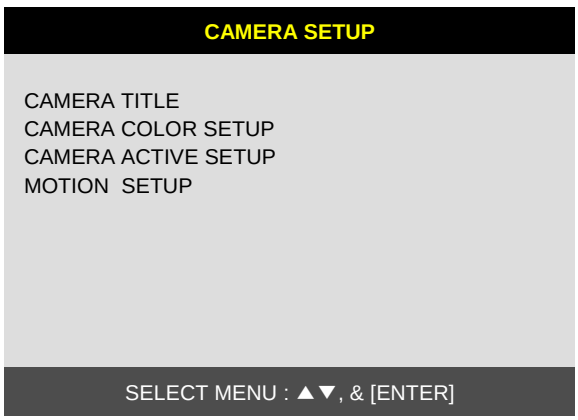


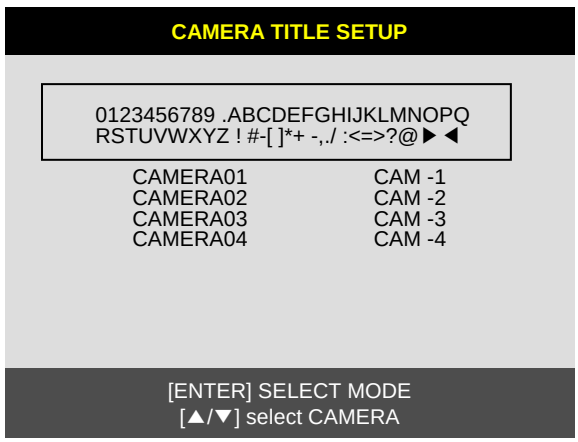
2) TIME/DATE SETUP

Set time and date of DVR system which is very important for search with time and date of the event. Time and date set by manufacturer is different from local time of user, and user must set time and date exactly in the first operation. Set time & date using direction buttons and [+][-] button.



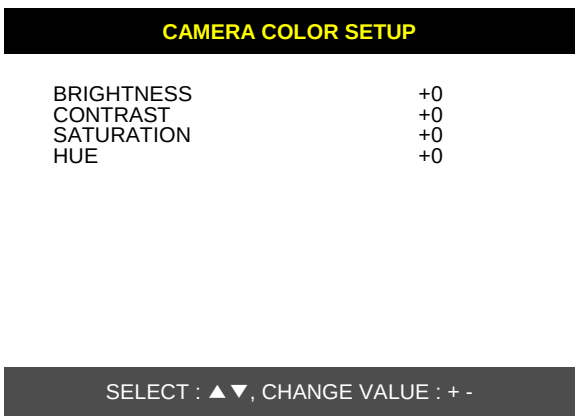
3) CAMERA SETUP





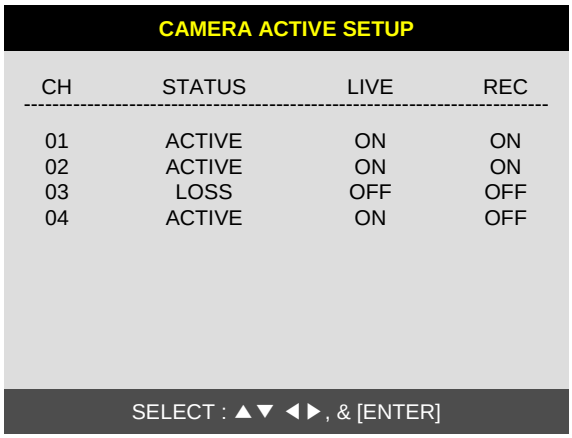
(1) TITLE : Input Title of each camera. Move to channel you want to change using [▲] or [▼] direction button and then press [ENTER] button.
Change the title using [+] [-] button. When modification is finished, press the [ENTER] button again. To exit to previous menu, press the [MENU] button.

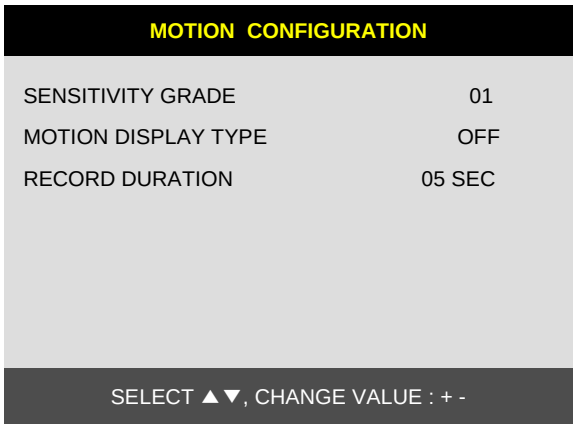
(2) COLOR : Adjust image color
Move to each element using [UP][DOWN] button.



BRIGHTNESS : Adjust image brightness (-32~ 31)
CONTRAST : Adjust color contrast (-32 ~ 31)
SATURATION : Adjust color saturation (-32 ~ 31)
HUE : Adjust color hue (-32 ~ 31)

Note : All channel of color will be changed at the same time.





(3) CAMERA ACTIVE SETUP : With direction button, move to option to be changed, and press [ENTER] button to select [ON/OFF]. If it is set at LIVE [OFF] and REC [ON], DVR system records, but does not show live image of set channel.

- STATUS : Shows if image from a specific channel is coming for live display and recording. In normal camera condition, it is ACTIVE, but LOSS is displayed when the cable is disconnected or camera is not working.
- LIVE : Decides whether to show LIVE screen image or not.
- REC : Decides whether to record relevant channel or not.

(4) MOTION SETUP : You can set sensitivity of motion detection in 4 steps and others in relation to motion recording in this menu.

- SENSITIVITY GRADE : Adjusts motion detection sensitivity. (1-LOW, 2-MEDIUM, 3-HIGH, 4-VERY HIGH)
- RECORD DURATION : Whenever motion is detected and it is set at Motion Recording mode, DVR system records for RECORD DURATION from time motion is detected. (1sec. ~ 99 sec.) (Default duration : 5 sec.)

4) INTERVAL SETUP

INTERVAL SETUP	
SWICHING INTERVAL	
FULL SCREEN	: 01 SEC
EVENT RECORD	
EVENT UPDATE TIME	: 01 SEC
SELECT ▲▼◀▶, CHANGE VALUE : + -	

Set the switching time interval for SEQ function.
(1 sec. ~ 99 sec.)

FULL SCREEN : set the sequencing switch time interval in live full screen.

EVENT UPDATE TIME : Set the minimum time interval of event to be listed in EVENT LIST.
If EVENT UPDATE TIME is set at 20 sec, only following event happened 20 sec or more than 20 sec later previous event shall be listed in EVENT LIST.

5) ALARM SETUP

Set type of alarm sensors connected to DVR unit.
N.O represents Normal Open type and N.C Normal Close type.

ALARM SETUP	
CHANNEL	CH1
ALARM INPUT	N.O
DURATION	005
N.O ..... NORMAL OPEN	
N.C ..... NORMAL CLOSE	
..... DISABLE	
SELECT : ▲▼, CHANGE VALUE : + -	

1) ALARM INPUT : Select type of alarm sensor connected to DVR unit (N.O or N.C).
Use direction button and [+] [-] button to set.
DISABLE represents not to use alarm sensor connected to DVR.
2) DURATION : Set the duration of alarm when an ALARM is activated. (0 sec. ~ 300 sec.)

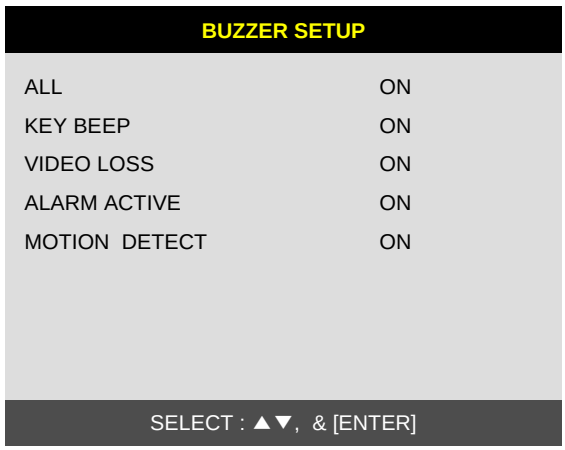
※ Please select NO, NC by input sensor.
NO : OPEN TYPE Sensor
NC : CLOSE TYPE Sensor
--- : Ignore Sensor input

6) BUZZER SETUP

Set parameters for buzzer (On or Off).
Use direction button and [ENTER] button.

KEY BEEP : buzz when button is pressed.
VIDEO LOSS : buzz when video signal is lost.
ALARM ACTIVE : buzz when alarm is activated.
MOTION DETECT : buzz when motion is detected.

User can set all buzzers at On/Off at once
by set ALL at ON/OFF.



7) PASSWORD SETUP

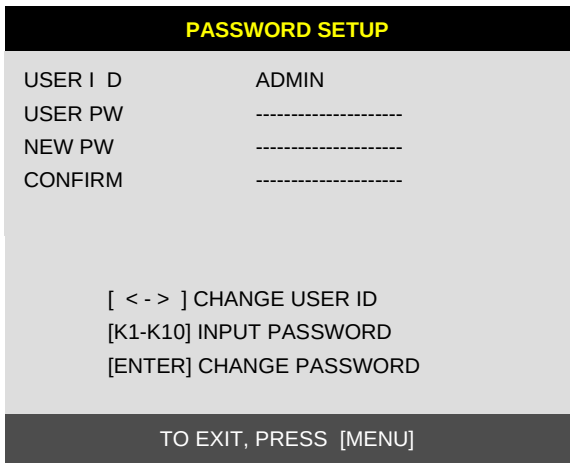
Set user ID and password.

-Use [UP] and [DOWN] button to move to option and [LEFT] and [RIGHT] button to set user ID.

The password must be consist of 1 to 8 digit number. Just use numbers button from 1 to 10 on the front panel of DVR unit.

-To change password, user must input current password and then input new password.
And input again new password to confirm.

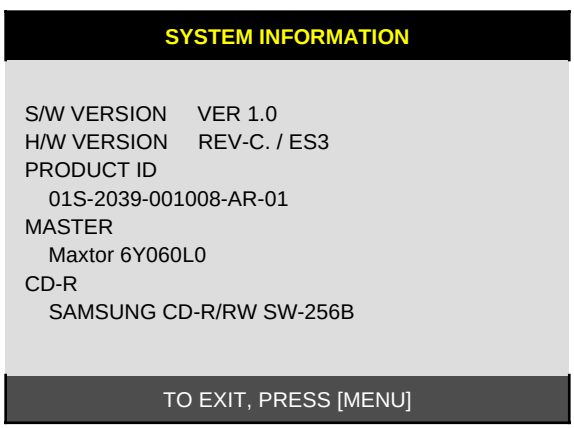
- Default value
  ADMIN : ‘ ‘ (Blank)
  MANAGER : ‘1’
  USER 1 : ‘2”
  :
  :
  USER 8 : ‘9’



※ After set or change password, you must press [ENTER] button.
※ Change the user PASSWORD in the first operation is recommended.
※ In case you forgot PASSWORD, contact dealer of DVR to get instruction to enter into menu.
※ Use [LEFT] button to delete. (Back Space Function)

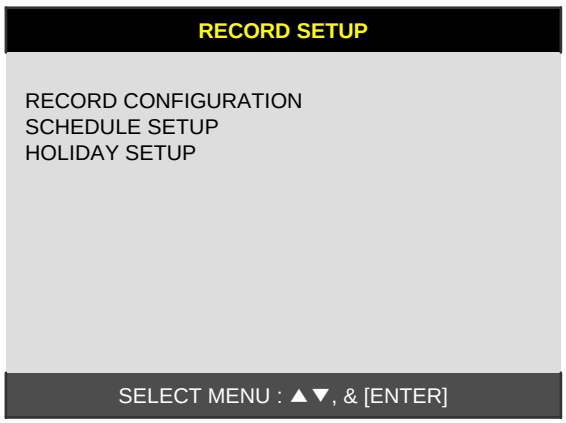
8) SYSTEM INFORMATION

DVR system information including firmware version, hardware version, product ID, etc….



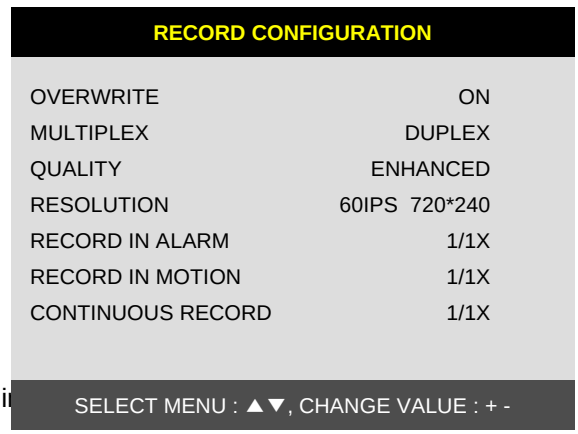
5-4. RECORD SETUP

This is the most important configuration of the DVR.
Enter into SYSTEM MENU-RECORD SETUP
and press the [ENTER] button.



1) RECORD CONFIGURATION

Use direction button to move and [+] [-] button to set value.



(1) OVERWRITE : Set overwrite or stop recording when the HDD is full.

(2) MULTIPLEX
- DUPLEX : Playback & Recording

(3) QUALITY : Set recording picture quality.
Actually it is fixing maximum data size of image for each picture quality in 5 steps as follows.

- BASIC
- NORMAL
- ENHANCED
- FINE
- SUPER FINE: Default quality set by manufacturer

In Emergency recording mode, recording quality is SUPER FINE.

To send more images via IP network and longer recordi time, set QUALITY at NORMAL or ENHANCED and record at 360x240(360x288).

※ Data size of image in PAL system is a little bigger than NTSC system, but the total recording time is same as in NTSC system.

(4) RESOLUTION : Set recording resolution.
- 60 ips at 720x240(NTSC) , 50 ips at 720x288(PAL)
- 120 ips at 360x240(NTSC) , 100 ips at 360x288(PAL)
- 240 ips at 360x120(NTSC) , 200 ips at 360x144(PAL)

※ It is not possible to see those images in full screen mode in playback.

(5) RECORD IN ALARM : Set record speed (skip rate) in ALARM record mode.

(6) RECORD IN MOTION : Set record speed (skip rate) in MOTION record mode.

(7) CONTINUOUS RECORD : Set record speed (skip rate) in CONTINUOUS record mode.

Set record speed (skip rate)
- 1/1x, 1/2x, ……. 1/999x record speed
- ex: 1/2x) R->S->R->S… - ex: 1/3x) R->S->S->R->S->S->R…
- ex: 1/4x) R->S->S->S->R->S->S… (R : RECORD S : SKIP)
- ex : If record resolution is set at 360x240, 1/1x = 120 ips, 1/2x = 60 ips, 1/3x = 40 ips, etc.

2) SCHEDULE SETUP

Unless you selected other recording mode, DVR system records in Schedule Recording mode.
In SCHEDULE REC SETUP, you set type of recording for every time interval of 2 hours in each day of the week. Schedule Recording set by manufacturer is recording continuously at its full recording speed, and it means DVR system record continuously at 60 ips in total at 720x240 resolution.
To set Schedule Recording parameters, enter into SYSTEM MENU-RECORD SETUP-SCHEDULE SETUP and Press the [ENTER] button.

(1) SCHEDULE SETUP

Set recording type for each recording time interval for a day of the week (2 hours interval).

SCHEDULE REC SETUP

	SUN	MON	TUE	WED	THU	FRI	SAT
00-02	-M-	AM -	- -C	- -C-	- -C-	- -C	- -C
02-04	-M -	AM -	- -C	- - C	- - C	- -C	- - C
04-06	- M -	AM-	- -C	- - C	- - C	- -C	- - C
06-08	-M -	AM-	-- C	-- C	- - C	-- C	-- C
08-10	- - -	AM-	- -C-	- - C	- - C	- -C	- - C
10-12	-- -	AM-	- - C	- - C	- - C	- -C	-- C

MODE: CELL BY CELL 1 / 2

▲▼◀▶ & [NEXT], EDIT:+ -&[MODE]
A:ALARM M:MOTION C:CONTINUES

Use [MODE] button to select edit type and move to the time interval of a day of the week you want to change.
Change the record type using [+] or [–] button
To go next page, use [NEXT] button.

※ MODE (Edit type)
TIME CELL : Set each time interval of a day of the week
WEEK : Set a day of the week at once
TIME ZONE : Set a time slot at once
ALL : Set page by page at once
CLEAR ALL: Clear page by page

※ Unless user press [REC] button to record at full resolution and in SUPER FINE picture quality, DVR system records in SCHEDULE Record mode.

※ DEFAULT record mode for each time interval of a day of the week set by manufacturer is CONTINUOUS recording.

※ Record type :
After power on ⇒ Schedule record
Exit from menu ⇒ Schedule record
End of search or playback ⇒ Schedule record
After pressing [STOP] button ⇒ Schedule record
After pressing [REC] button ⇒ Emergency record (Continuous recording in full performance) [60(50) ips at 720x240(720x288)]

3) HOLIDAY SETUP

Users can set national holiday or holidays on calendar to record just as setting for Sunday in SCHEDULE REC SETUP.

Use [MODE] button to select a month and direction button to move to a day, and press [ENTER] button to set a holiday. Then color of date shall be changed to red, as Sunday.

EDIT HOLIDAY : Set as holiday
CLEAR MON DATA : Cancel the holiday set per month
CLEAR ALL DATA : Cancel all holiday set
※ The maximum holidays is 100 days.
※ To go next page, use [NEXT] button

HOLIDAY SETUP

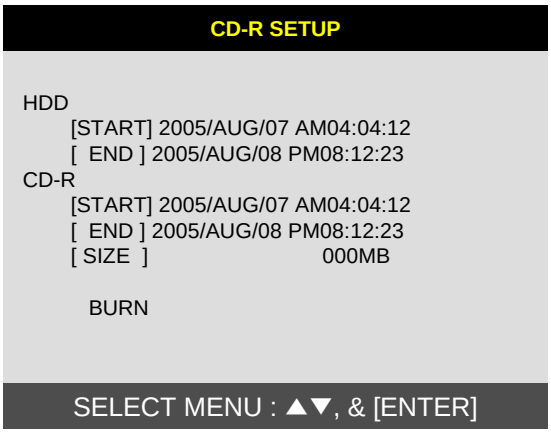
< APR > 000/100

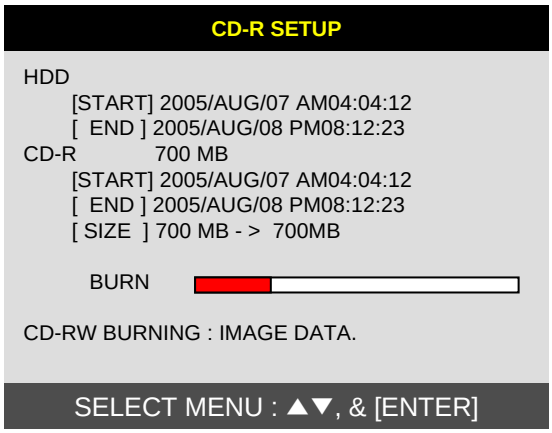
SUN	MON	TUE	WED	THU	FRI	SAT
					01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MODE : EDIT HOLIDAY
SELECT ▲▼◀▶, EDIT [ENTER]&[MODE]

5-5. BACK-UP

User can back up the recorded data to CD using CD writer installed in DVR.
Refer to [START] and [END] of data on HDD and set copy from time, [START], and size of data copied, [SIZE], and move to BURN and press [ENTER] button to start copy.





System Status Messages :
- CD-RW DOOR CLOSE. CHECKING CD-R : Blank CD check
- INPUT BLANK CD : CD writer has no blank CD.
- CD-RW DOOR OPEN : Open CD-RW and insert blank CD –R media into CD drive.
- CD-R MEDIA IS DETECTED : Blank CD-R media has been inserted and detected. DVR system will display size of blank CD-R.

After you set [START] time and [SIZE] in CD-R sub-menu and then select BURN, DVR system starts copying images to CD and shows following message.

CD-RW BURINING START
CD-RW BURNING : LEAD-IN
CD-RW BURNING : IMAGE DATA
CD-RW BURING : CLOSE TRACK
CD-RW DOOR OPEN

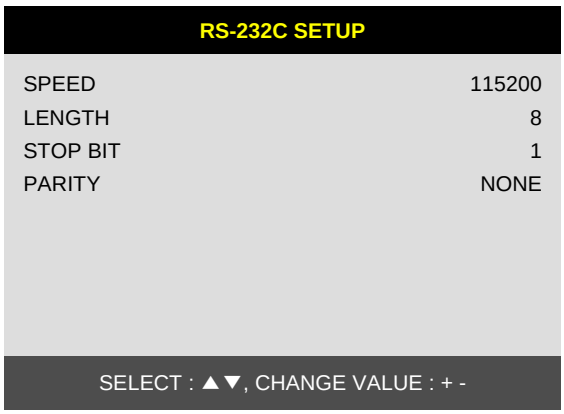
When burning is completed, CD-R media will be ejected automatically.
To copy more images, repeat above process. In the next back-up process, [START] time in CD-R sub-menu shall be [END] time in previous back-up, and you can copy images in series to many CDs as many as you want.

5-6. EXTERNAL DEVICE

Set parameters of external devices connected to DVR, like Ethernet, PTZ camera, RS-232C, etc.
Use direction button to move to sub-menu and Press [ENTER] button to set.

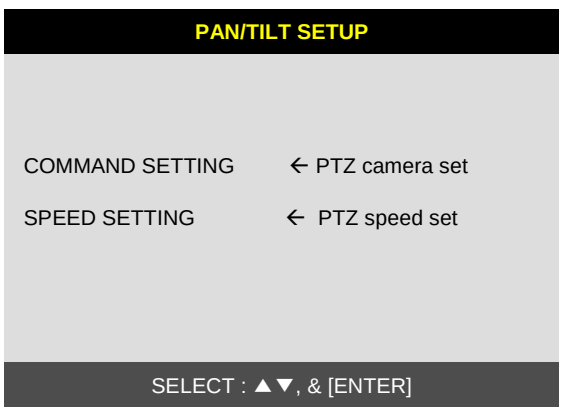
1) RS-232C SETUP

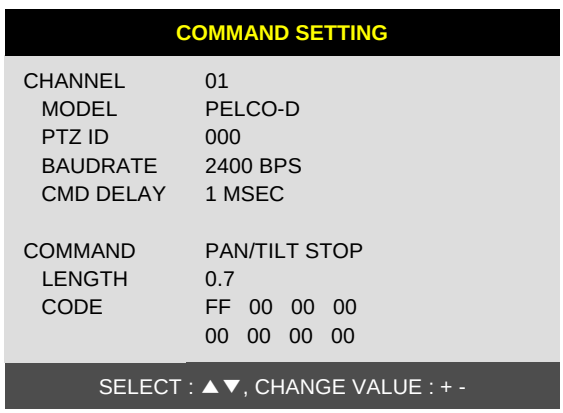
Connect DVR to PC via RS-232C port and control DVR using keyboard of PC.



2) PAN/TILT SETUP

DVR unit already includes all protocols of well-known PTZ cameras like PELCO D type PTZ camera, and user just select MODEL and set other parameters to control this PTZ cameras, using operation buttons on the front panel of DVR.

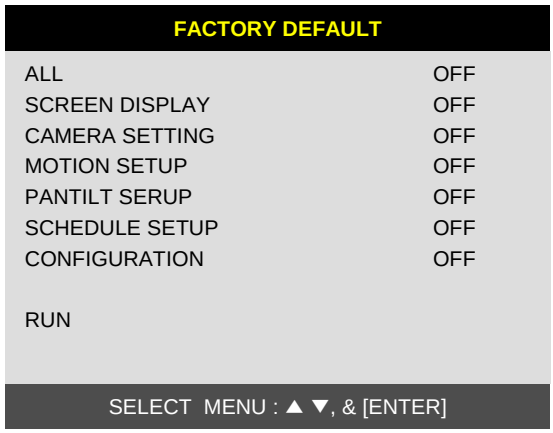




1) CHANNEL : Select channel
2) MODEL : Select camera model (protocol type) per each channel
3) PTZ ID : Select ID
4) BAUDRATE : Select data transmission speed
5) CMD DELAY : Select command delay time

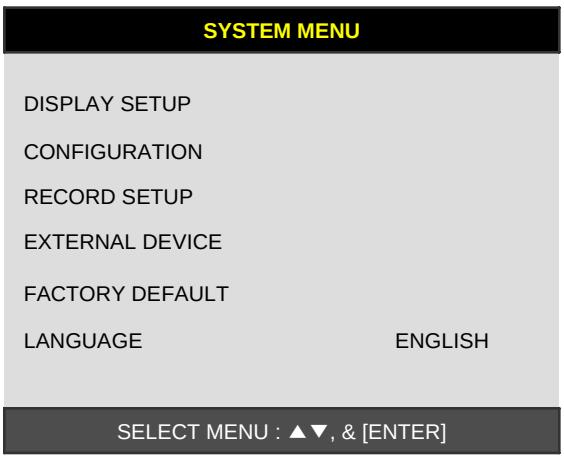
5-7. FACTORY DEFAULT

Set the all system parameters as manufacturer first set before delivery. It is a kind of system initialization, and manufacturer recommends to do it when you add new HDD or other changes in system to make all system ready for normal operation.
Use direction button to move and Press [ENTER] button to change parameters. After move to RUN, Press [ENTER] button for actual Factory Default setting.

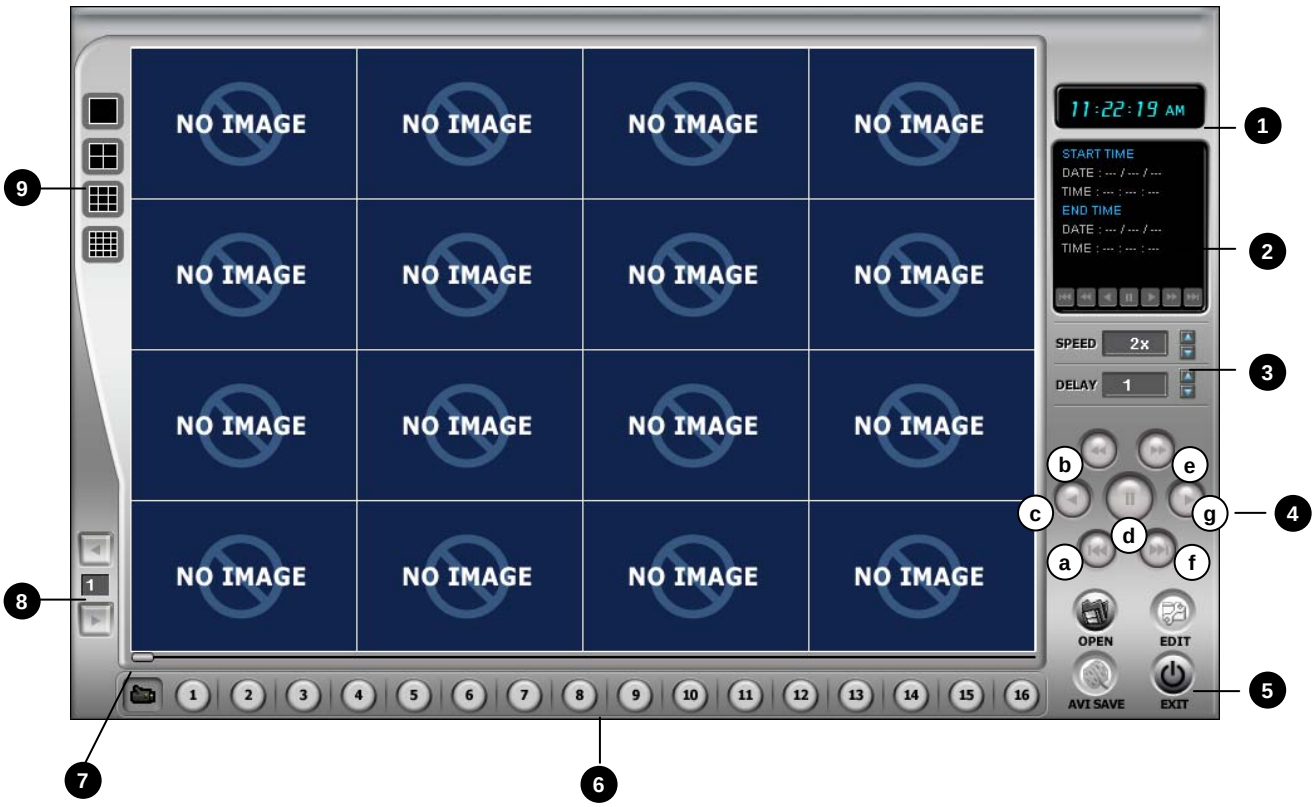


5-8. LANGUAGE SETUP

The menu can be displayed in a number of languages.
Press [+] [-] button to select your language.



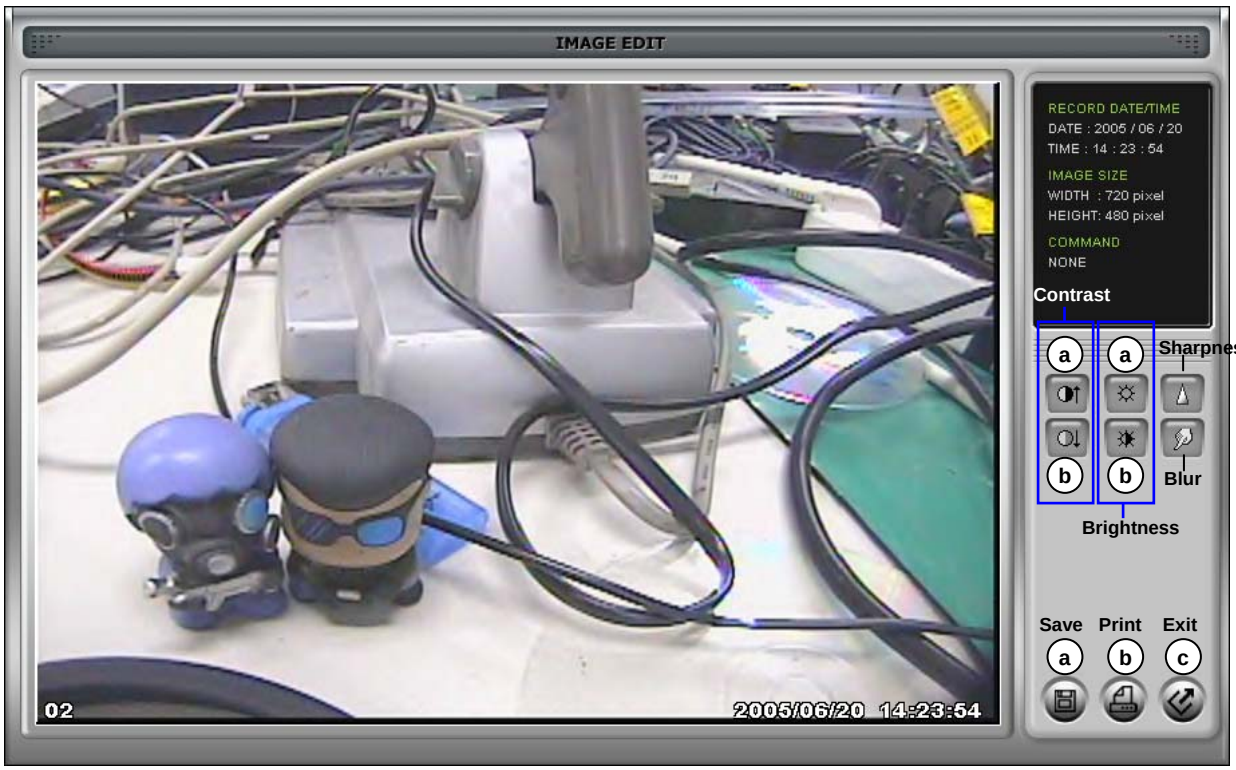
CHAP. 6 Back-up CD Player


NO IMAGE
11:22:19 AM
START TIME
DATE : --- / --- / ---
TIME : --- : --- : ---
END TIME
DATE : --- / --- / ---
TIME : --- : --- : ---
SPEED 2x
DELAY 1
OPEN
EDIT
AVI SAVE
EXIT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
a b c d e f g
1 2 3 4 5 6 7 8 9

DVR units are with a built-in CD-RW, and user can copy images to CD.
Using back-up CD player, user can see images on back-up CD, and function of each button in Back-up CD player is as below.

1. **Time** : Current time.
2. **Status Window** : Start & End of time & date, Status of operating button.
   When user play forward/backward, recorded time will appear.
3. **Play Speed button** : User can adjust play speed by pressing up/down button.
   Speed (1/4X, 1/2X, 1X, 2X, 4X, 8X, 16X) Delay : (1, 2, 4, 8, 16, 32)
4. **Operation button** : User can search recorded data using these buttons.
   a) Move the slide bar to start position
   b) Play fast backward in preset speed
   c) Play backward at 1x speed
   d) Pause
   e) Play forward at 1x speed
   f) Play fast forward in preset speed
   g) Move the slide bar to end position
5. **Function button**
   a) OPEN : Open the Back-up CD Player.
   b) EDIT : User can edit, save and print recorded image on Edit mode. This edit button will work when you selected one of 16 cameras.
   c) EXIT : Exit from Back-up CD Player.
6. **Channel button** : Select channel to see pictures in full screen.
7. **Slide Bar** : Move to a point from which user want to see.
8. **Page button :** This button is just working when screen-division is 4-split in 8 ch DVR, or 4-split or 8-split in 16 ch DVR. Moves to next page.
9. **Screen division** : 1/4/9/16

Image EDIT



1. Image Edit Status Window : Shows record time & date, Image size, Command status.

2. Edit Button : User can adjust color tone of copied images using this button.

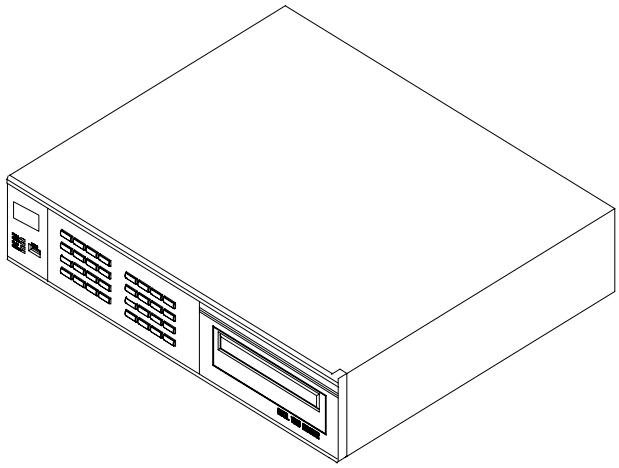
- Contrast :
  a) make bright part of image brighter and dark part of image darker
  b) To reduce light and shade, lower contrast a little
- Brightness
  a) make an image brighter
  b) make an image darker
- Sharpness : give sharp-edge effect
- Blur : make an image soft

3. Function button

a) Save : User can save an image in JPEG format. It is saved in the folder where you installed back-up CD player.
b) Print : User can print current image user selected
c) EXIT : Return to Back-up CD Player mode.

CHAP. 7 Specifications

- The best picture quality in Playback(JPEG-2000)
- Real time live display in all channels
- 4 channel video 240(200)ips recording capability
- Duplex (Playback/Recording)
- Multi-language menu
- USB (Device) port for firmware upgrade
- Easy PTZ camera control by pre-assigned buttons
- Password Protection



Multiplex function			Duplex (Playback/Recording)
Storage	Internal	HDD	2, Up to 400GB HDD per each HDD
Capacity		CD-RW	For Backup
Video	Inputs	Composite	4Ch
	Outputs	Composite	2Ch (Monitor / VCR)
	Compression		JPEG-2000
	Compression Rate		Basic
	(Image size fixed)		Normal
			Enhanced
			Fine
			Super Fine
	Display Speed		Real Time display
Recording	Recording Mode		Schedule (Time, Motion, Alarm), Emergency
/Search	Search		Event Search, Date/Time Search, Search Bar
	Recording Speed (NTSC/PAL)		Full (60/50), Dual (120/100) , Dual (240/200)
	Recording Resolution (NTSC/PAL)		Full (720x240/720x288), Dual (360x240/360x288) , Quad (360x120/360x144)
Multi-language			English, Spanish, German, Italy, France, to be added more
Switching Interval			1~99 sec selectable
Live Division Screen			1 / 4 Split
			Digital Zoom, Freeze function available in Live mode, SEQ
Alarm	Inputs		4 Alarms (NO/NC selectable in SETUP menu)
	Outputs		1 (NO/NC)
	Post Alarm		Duration of alarm output : 1 sec ~ 300 sec selectable
Motion Detection			Area division : 16 x12 / Detection Division : 32 x 24
Network			None
Backup			VCR, CD-RW back-up
PTZ Control			RS-485, Key Control(Key assigned for each PTZ command)
Firmware upgrade			USB port for firmware upgrade, CD-R
Serial I/F		RS-485	For PTZ camera control
		RS-232C	For operation using keyboard of PC
Power Requirements			DC 12V 5.83A Adaptor
Weight			3.5 kg
Dimensions (WXHXD) mm			360 X 340 X 70
Packing			460 X 440 X 155

Design and specifications are subjected to changes without notice

4L Stand Alone DVR

Best Picture Quality - JPEG2000